

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
16 June 2005 (16.06.2005)

PCT

(10) International Publication Number
WO 2005/054837 A1

(51) International Patent Classification⁷: **G01N 27/403**

(21) International Application Number:
PCT/GB2004/005060

(22) International Filing Date: 2 December 2004 (02.12.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0327863.7 2 December 2003 (02.12.2003) GB

(71) Applicant (for all designated States except US):
HERIOT-WATT UNIVERSITY [GB/GB]; Riccarton, Edinburgh EH14 4AS (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **NEVILLE, Anne** [GB/GB]; 371 Ring Road, Moortown, Leeds LS17 8NP (GB). **TEH, Tong** [MY/GB]; 11, 2F1 Temple Park Crescent, Edinburgh EH11 1JF (GB).

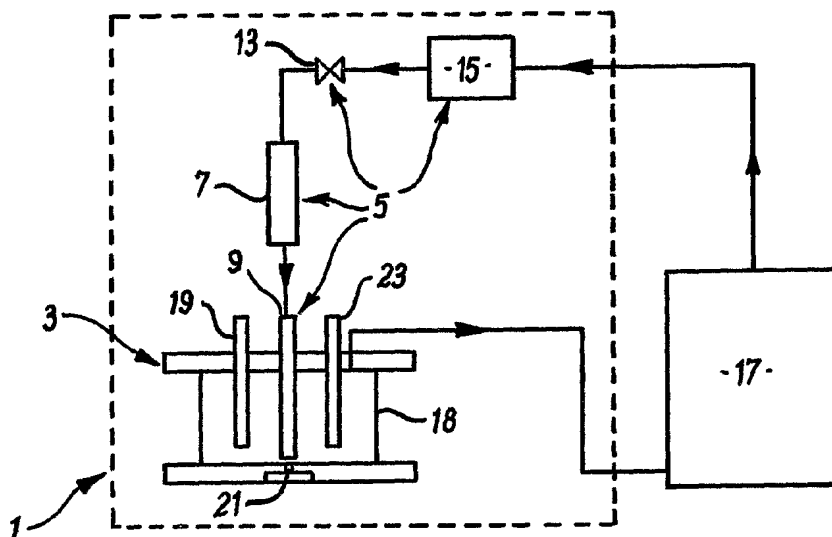
(74) Agent: **KENNEDYS PATENT AGENCY LIMITED**; Floor 5, Queens House, 29 St. Vincent Place, Glasgow G1 2DT (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: ELECTROCHEMICAL SENSOR FOR SCALE BUILDING UP MEASUREMENTS



(57) Abstract: An electrochemical sensor apparatus (1) and method for measuring scale, such as mineral scale or other particulates, which deposit on the surface of pipelines or process equipment. The device has an electrochemical cell (1) with a working electrode (21) and fluid flow control means (15) positioned so as to release a fluid jet onto the working electrode (21). The velocity of the fluid jet is controllable and is defined by the Reynolds number of the fluid when the fluid is in the fluid flow control means (15). Measurement of the electrical output from the electrochemical cell (1) and the Reynolds number provide a measure of the build-up of scale on the working electrode (21).

WO 2005/054837 A1

**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.